

# 1996 Index

## IEEE Transactions on Power Systems

### Vol. 11

This index covers all technical items - papers, correspondence, reviews, etc. - that appeared in this periodical during 1996, and items from previous years that were commented upon or corrected in 1996.

The Author Index contains the primary entry for each item, listed under the first author's name, and cross-references from all coauthors. The Subject Index contains several entries for each item under appropriate subject headings, and subject cross-references.

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- Electric variables control;** cf. Reactive power control; Voltage control
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Gradient methods; cf. Least mean square methods

**Graphical user interfaces**

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Graph theory; cf. Trees (graphs)

**H****Harmonic analysis**

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**H-infinity control**

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Hydroelectric power generation; cf. Pumped storage power generation

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Image databases; cf. Geographic information systems

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- power syst. small-sig. stabil. anal., crit. eigenvalues calc. *Angelidis, +*, *T-PWRS Aug 96* 1209-1217  
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**J****Jacobian matrices**

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**K****Kalman filtering**

- power syst. EMS, real-time recursive param. estim. *Slutsker, I.W.*, *T-PWRS Aug 96* 1393-1399



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**knowledge based systems; cf.** Expert systems

**L****laboratories**

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**amps; cf.** Lighting

**AN; cf.** Local area networks

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**large-scale systems; cf.** Interconnected power systems; Sparse matrices

**learning control systems; cf.** Neurocontrollers

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**linear algebra; cf.** Matrices

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**Linear programming; cf.** Integer programming

**Linear-quadratic control**

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**LMS; cf.** Least mean square methods

**Load dispatching; cf.** Power generation dispatch

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- Load restoration**  
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- Load shedding**  
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island power syst. dyn. security assess., neural net-based. *Kottick, D.*, +, *T-PWRS Aug 96 1350-1358*  
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 distrib. syst. reconfiguration, loss reduction, network partitioning theory. *Sarfi, R.J.*, +, *T-PWRS Feb 96 504-510*  
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**Q control**; cf. Linear-quadratic control  
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## M

**Magnetic resonance**; cf. Ferroresonance  
**Maintenance**; cf. Power system maintenance  
**Management**; cf. Project management  
**Man-machine systems**  
 power syst. control GUI enhancement, human factors perspective. *Pires de Azevedo, G.*, +, *T-PWRS May 96 646-653*  
**Man-machine systems**; cf. Human factors  
**Markov processes**  
 interconnected power syst., probabilistic simultaneous transfer capability anal. *Feng Xia*, +, *T-PWRS Aug 96 1269-1278*  
**Mathematical programming**  
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**Mathematics**; cf. Algebra; Combinatorial mathematics; Numerical analysis; Optimization methods  
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 power syst. transient anal., EMTF software-based. *Kang, Y.*, +, *T-PWRS May 96 754-760*  
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 struct.-preserving power syst. stabil. models, parametric sensitivities. *Lee, B.*, +, *T-PWRS May 96 845-850*

**Matrices**; cf. Jacobian matrices; Sparse matrices

## Matrix inversion

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**Measurement**; cf. Power system measurements; Transducers

**Mechanical factors**; cf. Rotating machine mechanical factors

**Memory sharing**; cf. Shared memory systems

**Meteorology**; cf. Power system meteorological factors; Weather forecasting

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DEMAXX power syst. EMS upgrade project, USA. *Radtke, M.A.*, *T-PWRS Feb 96 409-414*

Krylov subspace power syst. load flow calc. methodology. *Semlyen, A.*, *T-PWRS Aug 96 1528-1537*

power syst. control, batt. energy storage plant appl. prospects. *Lachs, W.R.*, +, *T-PWRS Feb 96 11-18*

university power syst. protection research/teaching lab., Canada. *Sachdev, M.S.*, +, *T-PWRS May 96 613-619*

## Microprocessors

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## Minicomputer applications

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## Modeling

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versatile FACTS device model for power flow and stabil. simul. *Arabi, S.*, +, *T-PWRS Nov 96 1944-1950*

**Modeling**; cf. Circuit modeling; Power system modeling; Simulation

**Model reduction**; cf. Reduced order systems

## Monitoring

power syst. voltage security monitoring, neural net-based method. *La Scala, M.*, +, *T-PWRS Aug 96 1332-1341*

**Monitoring**; cf. Power system monitoring

## Monte Carlo methods

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**Motion measurement**; cf. Tracking

**Motors**; cf. DC motors; Induction motors

**Moving average processes**; cf. Autoregressive moving average processes

**Multiarea power systems**; cf. Interconnected power systems

**Multiinput-multioutput systems**; cf. Multivariable systems

## Multilayer perceptrons

power syst. short-term load forecasting, heterog. neural net-based. *Piras, A.*, +, *T-PWRS Feb 96 397-402*

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## Multiprocessing

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**Multiprocessing**; cf. Distributed memory systems; Shared memory systems

**Multiprocessor interconnection**; cf. Hypercubes

## Multivariable systems

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inter-area power syst. control design, low-order black-box models. *Kamwa, I.*, +, *T-PWRS Feb 96 303-311*

PSS flexible optimal controller design, modal perform. measure. *Simo, J.B.*, +, *T-PWRS May 96 819-826*



## N

**Neural network applications**

- adaptive lin. combiner for on-line harmonics tracking of power syst. *Dash, P.K.*, +, *T-PWRS Nov 96 1730-1735*
- ANN-based preventive control measures for dyn. security of isolated power systs. with renewables. *Fidalgo, J.N.*, +, *T-PWRS Nov 96 1811-1816*
- ANN-based transient stabil. assess. in long. power systs. *Aboytes, F.*, +, *T-PWRS Nov 96 2003-2010*
- elec. utility short-term load forecasting, neural net temp. forecast appls. *Khotanzad, A.*, +, *T-PWRS May 96 870-876*
- Greek power syst. short-term load forecasting model, neural net-based. *Bakirtzis, A.G.*, +, *T-PWRS May 96 858-863*
- island power syst. dyn. security assess., neural net-based. *Kottick, D.*, +, *T-PWRS Aug 96 1350-1358*
- neural-network-based short-term forecasting of anom. load periods. *Lamedica, R.*, +, *T-PWRS Nov 96 1749-1756*
- neural network based short-term load forecasting using weather compensation. *Chow, T.W.S.*, +, *T-PWRS Nov 96 1736-1742*
- power plant training simulators, novel generator models. *Lin Xianshu*, +, *T-PWRS May 96 1090-1095*
- power syst. monitoring, ANN pattern anal., data debugging. *Souza, J.C.S.*, +, *T-PWRS Aug 96 1592-1599*
- power syst. short-term load forecasting, heterog. neural net-based. *Piras, A.*, +, *T-PWRS Feb 96 397-402*
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- power syst. voltage security monitoring, neural net-based method. *La Scala, M.*, +, *T-PWRS Aug 96 1332-1341*
- security-constrained optimal rescheduling of real power using Hopfield neural network. *Ghosh, S.*, +, *T-PWRS Nov 96 1743-1748*
- short-term power syst. load forecasting techs. comparison. *Liu, K.*, +, *T-PWRS May 96 877-882*

**Neural network applications; cf. Neurocontrollers****Neural networks; cf. Feedforward neural networks****Neurocontrollers**

- sync. generator stabilizer design using neuro inverse controller and error reduction network. *Park, Y.-M.*, +, *T-PWRS Nov 96 1969-1975*

**Newton-Raphson method**

- load flow calc., software engng., code generation. *Bacher, R.*, *T-PWRS Feb 96 490-496*
- unsymmetrical power lines, three-phase load flow calc. methods. *Xiao-Ping Zhang*, *T-PWRS Aug 96 1547-1554*
- untransposed power line freq.-depend. transform. matrices. *Wedepohl, L.M.*, +, *T-PWRS Aug 96 1538-1546*

**Newton's method**

- back-press. cogen., time-of-use rate operation optim. *Bin-Kwie Chen*, +, *T-PWRS May 96 1074-1082*
- Krylov subspace power syst. load flow calc. methodology. *Semlyen, A.*, *T-PWRS Aug 96 1528-1537*
- power syst. parallel load flow calcs., block-parallel Newton method. *Amano, M.*, +, *T-PWRS Aug 96 1519-1527*
- power syst. VAR planning, optimal reactive margin determ. *Parker, C.J.*, +, *T-PWRS Aug 96 1473-1481*

**Nonlinear distortion; cf. Harmonic distortion****Nonlinear equations**

- Krylov subspace power syst. load flow calc. methodology. *Semlyen, A.*, *T-PWRS Aug 96 1528-1537*
- load flow calc., software engng., code generation. *Bacher, R.*, *T-PWRS Feb 96 490-496*

**Nonlinear equations; cf. Newton's method****Nonlinearities**

- nonlin. dyn. load modeling, model and param. estim. *Ju, P.*, +, *T-PWRS Nov 96 1689-1697*

**Nonlinear programming**

- distrib. network planning, reliab. modeling/optim., software-based. *Tang, Y.*, *T-PWRS Feb 96 181-189*
- power syst. optim., interior point quadratic prog. algm. *Wei, H.*, +, *T-PWRS Feb 96 260-266*

**Nonlinear systems**

- decentralized nonlin. optimal excitation control. *Lu, Q.*, +, *T-PWRS Nov 96 1957-1962*
- nonlin. modal interact. in HVDC/AC power syst. with DC power modulation. *Ni, Y.-X.*, +, *T-PWRS Nov 96 2011-2017*
- probabilistic approach to aggregate induction machine modeling. *Stankovic, A.M.*, +, *T-PWRS Nov 96 1983-1989*

**Nuclear power generation control**

- exciter const. param. ident./tuning experiences, Taiwan. *Yuan-Yih Hsu*, +, *T-PWRS May 96 747-753*

**Numerical analysis**

- short-term hydro-thermal generation coord. approach. *Ruzic, S.*, +, *T-PWRS Aug 96 1564-1571*

**Numerical analysis; cf.** Approximation methods; Convergence of numerical methods; Iterative methods; Monte Carlo methods; Newton-Raphson method; Newton's method; Relaxation methods; Sparse matrix methods; Transmission line matrix methods

**Numerical stability**

- power systs., FACTS devices, multirate simul. *Crow, M.L.*, +, *T-PWRS Feb 96 376-382*
- power syst. small-sig. stabil. anal., crit. eigenvalues calc. *Angelidis, K.*, +, *T-PWRS Aug 96 1209-1217*
- power syst. state estim., leverage points ident. method. *Mili, L.*, *T-PWRS Feb 96 216-225*
- power syst. state estim., robust bad data ident. algm. *Cheniae, M.G.*, *T-PWRS Aug 96 1555-1563*
- power syst. unit commitment scheduling, genetic algm.-based. *Maifong, T.T.*, +, *T-PWRS Aug 96 1359-1370*

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**Object oriented databases**

- power syst. restoration, obj.-oriented approach. *Gaig, Z.L.*, +, *T-PWRS Feb 96 483-489*

**Object oriented methods**

- Intelligent Alarm Analyzer, power syst. fault location/diagnosis. *Han, Miao*, +, *T-PWRS Aug 96 1600-1606*
- power syst. restoration, obj.-oriented approach. *Gaig, Z.L.*, +, *T-PWRS Feb 96 483-489*

**Object oriented programming**

- power syst. computer simul., OOP/C++ lang. appls. *Zhou, E.Z.*, *T-PWRS Feb 96 206-215*
- power syst. design model, exergetic anal. considerations. *Delly Oliveira, F.*, +, *T-PWRS May 96 675-682*

**Observability**

- 3-phase distrib. network state estim., zero-injection constraints. *Wheili, Lin*, +, *T-PWRS Feb 96 518-524*
- power syst. interarea oscills. damping control design, reduction method. *Sanchez-Gasca, J.J.*, +, *T-PWRS Aug 96 1342-1349*

**Open systems**

- distributed EMS, perform. estim., modeling/simul. *Horiike, S.*, +, *T-PWRS Feb 96 463-468*
- LANSIM-based distributed EMS perform. eval. *Shau-Ming Lun*, +, *T-PWRS Aug 96 1159-1165*

**Optical fiber cables**

- long term atten. meas. on opt. ground wires. *Lamarche, L.*, +, *T-PWRS Nov 96 1863-1867*

**Optical fiber communication; cf. FDDI****Optimal control**

- bulk power syst. multivariable control design, modal reduction tech. *Tan, Y.*, +, *T-PWRS Feb 96 295-302*
- decentralized nonlin. optimal excitation control. *Lu, Q.*, +, *T-PWRS Nov 96 1957-1962*
- distrib. network optimal switch reconfig./capacitor control design. *Jiang, X.*, +, *T-PWRS May 96 890-897*
- mesh distrib. network control, multiobjective feeder reconfig. scheme. *Roytelman, I.*, +, *T-PWRS May 96 661-667*
- MV distrib. network optim. operation methodology. *Peponis, G.J.*, *T-PWRS Feb 96 59-67*
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- power syst. load flow regulation, fuzzy optimal control scheme. *W.-H.E.*, +, *T-PWRS May 96 639-645*
- power syst. multiobjective generation dispatch, dyn. security constraints. *Chang, C.S.*, +, *T-PWRS May 96 1009-1016*
- power syst. optimal power flow control, hybrid decoupled approach. *Lu, Z.*, +, *T-PWRS May 96 947-954*
- power syst. steady-state voltage monitoring/control algm. *Zobian, A.*, *T-PWRS May 96 929-938*
- PSS flexible optimal controller design, modal perform. measure. *Shah, J.B.*, +, *T-PWRS May 96 819-826*
- trunk power syst. transient stabil. control syst. develop. *Ota, H.*, *T-PWRS Aug 96 1463-1472*

**Optimal control; cf.** H-infinity control; Linear-quadratic control; Suboptimal control**Optimization methods**

- back-press. cogen., time-of-use rate operation optim. *Bin-Kwie Chen*, *T-PWRS May 96 1074-1082*
- distrib. syst. design optim. for cold load pickup. *Wakileh, J.J.*, +, *T-PWRS Nov 96 1879-1884*
- hydrothermal power generation scheduling/sale transaction planning. *Prasannan, B.*, +, *T-PWRS May 96 654-660*



- large-scale unit commitment, stochastic optim. decomp. framework. *Carpentier, P.*, +, *T-PWRS May 96* 1067-1073
- long-term hydrothermal generation scheduling, composite representation. *da Cruz, G., Jr.*, +, *T-PWRS May 96* 702-707
- multiarea power syst. probabilistic prod. costing method. *Hobbs, B.F.*, +, *T-PWRS May 96* 1024-1030
- power generating unit economic dispatch, evol. prog.-based. *Hong-Tzer Yang*, +, *T-PWRS Feb 96* 112-118
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- power syst. optimal load flow crit. cases, computer simul. *Almeida, K.C.*, +, *T-PWRS Aug 96* 1509-1518
- power syst. seq. unit commitment techs. *Fan, J.Y.*, +, *T-PWRS Feb 96* 93-100
- power syst. short-term load forecasting, optim. template temp. match-based. *Yu, Z.*, *T-PWRS May 96* 728-733
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- Optimization methods; cf.** Genetic algorithms; Gradient methods; Least squares methods; Mathematical programming; Minimization methods; Simulated annealing
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Power transmission faults

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Power transmission faults; cf. Power transmission protection

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Power transmission protection

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Power transmission protection; cf. Power transmission faults

Power transmission reliability

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- bulk power syst. delivery point reliab., probabilistic methods. *Weber, E.*, +, *T-PWRS Aug 96 1262-1268*
- CHP generation expansion planning, probabilistic prod. simul. *Sondergren, C.*, +, *T-PWRS May 96 1031-1036*
- DSM, natural/controlled diversity, air conditioning peak loads comparison. *Zuwei Yu*, +, *T-PWRS Aug 96 1201-1208*
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**Probability; cf. Monte Carlo methods****Programming; cf. Object oriented programming; Software tools****Project management**

- DEMAXX power syst. EMS upgrade project, USA. *Radtko, M.A.*, *T-PWRS Feb 96 409-414*

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- power syst. dist. protection, Fourier/Walsh digital filtering algsms. *Altuve Ferrer, H.J.*, +, *T-PWRS Feb 96 457-462*
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- distributed EMS, perform. estim., modeling/simul. *Horiike, S.*, +, *T-PWRS Feb 96 463-468*
- EMS, LAN based data commun. *Dieterle, W.*, +, *T-PWRS Feb 96 469-474*
- power syst. telecontrol SCADA systs., telecom. channel capacity calcs. *Luque, J.*, +, *T-PWRS May 96 917-922*

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- power syst. load reduction, aperiodic load group switching-based scheme. *Navid-Azarbaijani, N.*, +, *T-PWRS May 96 721-727*

**Pumped storage power generation**

- LP method for scheduling of pumped-storage units with oscillatory stabil. constraints. *Jeng, L.-H.*, +, *T-PWRS Nov 96 1705-1710*

**R****Rail transportation power systems**

- Swiss Rail, short-term hydro generation, interchange contract scheduling. *Christoforidis, M.*, +, *T-PWRS Feb 96 274-280*
- Swiss Railways, hydrodominant power syst., resource scheduling. *Christoforidis, M.*, +, *T-PWRS Feb 96 287-294*

**Reactive power**

- power syst. reactive power planning, computer-based heuristic method. *Mantovani, J.R.S.*, +, *T-PWRS Feb 96 68-74*
- power syst. restoration, coal fired stations, rem. cranking. *Adibi, M.M.*, +, *T-PWRS Aug 96 1613-1618*
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- power syst. VAR planning, optimal reactive margin determ. *Parker, C.J.*, +, *T-PWRS Aug 96 1473-1481*
- power syst., voltage collapse, security enhancement, operating margin. *Berizzi, A.*, +, *T-PWRS Aug 96 1451-1462*
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**Reactive power control**

- EMAP, rot. machine CAI software package. *Gross, C.A.*, *T-PWRS May 96 607-612*

- HVDC convertor substation series capacitor compensation, ferroresonance solns. *Woodford, D.A.*, *T-PWRS Aug 96 1325-1331*
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- power syst. voltage security enhancement, fuzzy control. *Ching-Tzong*, +, *T-PWRS Aug 96 1654-1659*
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- Tabu search approach to capacitor placement in radial distrib. syst. *Yeh, H.-T.*, +, *T-PWRS Nov 96 1868-1873*

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- distrib. feeder, real-time monitoring, meter placement. *Baran, M.E.*, *T-PWRS Feb 96 332-337*
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**Reasoning; cf. Inference mechanisms****Rectifiers**

- control, design module, power engng. course. *Goel, L.*, +, *T-PWRS Feb 96 1131-1138*

**Recursive estimation**

- power syst. EMS, real-time recursive param. estim. *Slutsker, I.W.*, *T-PWRS Aug 96 1393-1399*

**Recursive estimation; cf. Kalman filtering****Reduced order systems**

- power syst. multiobjective generation dispatch, dyn. security constraints. *Chang, C.S.*, +, *T-PWRS May 96 1009-1016*

**Relaxation methods**

- power systs., W-matrix relax., shared memory parallel computer. *Qiang Wu*, +, *T-PWRS Feb 96 233-238*

**Relaxation methods; cf. Simulated annealing****Relays; cf. Power system relaying; Protective relaying****Reliability; cf. Failure analysis; Power system reliability****Reliability estimation**

- test syst. for teaching overall power syst. reliab. assess. *Billinton, R.*, *T-PWRS Nov 96 1670-1676*

**Resonance; cf. Ferroresonance; Subsynchronous resonance****Riccati equations**

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**Robustness**

- dissipativity framework for power syst. stabilizer design. *Jacobson, M.*, +, *T-PWRS Nov 96 1963-1968*
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**Roots; cf. Poles and zeros****Rotating machine mechanical factors**

- damping and synchronizing torques induced on generators by FA stabilizers in multimachine power systs. *Pourbeik, P.*, +, *T-PWRS Feb 96 1920-1925*

**Rotating machines; cf. DC motors; Generators; Induction machines****Rotating machine transient analysis**

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- power plant training simulators, novel generator models. *Lin Xiansheng*, *T-PWRS May 96 1090-1095*



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**afety; cf.** Protection/safety

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**ellite navigation systems; cf.** Global Positioning System

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**attering matrices; cf.** Transmission line matrix methods

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power syst., voltage collapse, security enhancement, operating margin. *Berizzi, A.*, +, *T-PWSR Aug 96 1451-1462*

**cheduling; cf.** Power generation scheduling

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urban distrib. syst. planning optim., computational evol.-based. *Yeh, E.-C.*, +, *T-PWSR May 96 668-674*

**arch methods; cf.** Genetic algorithms

**urity; cf.** Data security; Power system security

**isitivity**

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**isitivity; cf.** Robustness

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**ies (math.); cf.** Fourier series

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**nal analysis; cf.** Harmonic analysis

**nal processing; cf.** Filtering

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power syst. short-term load forecasting, ARMAX model ident. method. *Hong-Tzer Yang*, +, *T-PWSR Feb 96 403-408*

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**ulation; cf.** Discrete event simulation; Power system simulation

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ATP, power syst. digital dist. relaying algm. studies. *Waikar, D.L.*, +, *T-PWSR Feb 96 448-456*

CPFLOW, multiarea power syst. load flow capability simul. *Flueck, A.J.*, +, *T-PWSR May 96 883-889*

dec. utility dispatcher training simulator experiences, USA. *Kambale, P.*, +, *T-PWSR May 96 898-904*

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ETMSP, large-scale power syst. voltage stabil. assess. *Gao, B.*, +, *T-PWSR Aug 96 1314-1324*

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SAS, power syst. short-term load forecasting. *Hong-Tzer Yang*, +, *T-PWSR Feb 96 403-408*

VSTAB, large-scale power syst. voltage stabil. assess. *Gao, B.*, +, *T-PWSR Aug 96 1314-1324*

**Singularly perturbed systems**

two-area power syst. stabil. modelling, freq. excursion effects. *Varma, R.K.*, +, *T-PWSR May 96 827-832*

**Software; cf.** Database management systems; Simulation software

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power syst. monitoring, ANN pattern anal., data debugging. *Souza, J.C.S.*, +, *T-PWSR Aug 96 1592-1599*

**Software engineering**

load flow calc., software engng., code generation. *Bacher, R.*, *T-PWSR Feb 96 490-496*

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- Software reliability**; cf. Software debugging
- Software reusability**; cf. Object oriented programming
- Software tools**
- experience with optim. software for distribution syst. planning. *Blanchard, M.*, +, *T-PWRS Nov 96 1891-1898*
- Space cooling**; cf. Air conditioning
- Sparse matrices**
- interconnected power systs., stabil., matrices, refactored bi-iter., eigen-solution method. *Campagnolo, J.M.*, +, *T-PWRS Aug 96 1228-1235*
- leverage points ident. method. *Mili, L.*, +, *T-PWRS Feb 96 216-225*
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- power syst. sparse matrices, levelwise algms., vector proc. *Montagna, M.*, +, *T-PWRS Feb 96 239-245*
- power syst. stabil. vector proc., dependency-based anal. algms. *Vuong, G.T.*, +, *T-PWRS Feb 96 198-205*
- power systs., W-matrix relax., shared memory parallel computer. *Jun Qiang Wu.*, +, *T-PWRS Feb 96 233-238*
- Spectral analysis**; cf. Harmonic analysis
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- Stability**; cf. Lyapunov methods; Numerical stability; Power system stability; Robustness
- Standards**; cf. Open systems
- State estimation**; cf. Kalman filtering; Power system state estimation
- State space methods**
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- Steady state stability**; cf. Power system dynamic stability
- Steam generation**
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- Stochastic optimal control**; cf. Linear-quadratic-Gaussian control
- Stochastic processes**
- distrib. network state estim. approach, meas. error impacts. *Ke Li.*, *T-PWRS May 96 911-916*
- generating unit commitment problem, stochastic computer model. *Takriti, S.*, +, *T-PWRS Aug 96 1497-1508*
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- Stochastic processes**; cf. Autoregressive processes; Markov processes; Time series
- Suboptimal control**
- power syst. suboptimal  $H^\infty$  excitation controller design. *Ahmed, S.S.*, *T-PWRS Feb 96 312-318*
- Subroutines**; cf. Algorithms
- Substation measurements**
- 500 kV FACTS substation stabilization, thyristor SC tests. *Hauer, J.F.*, *T-PWRS May 96 801-806*
- Substations**
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- Substation switching**
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- thermal power plant SO<sub>2</sub> emission allowances, market impediments, U.S. *Walsh, M.*, +, *T-PWRS May 96 996-1001*
- Superconducting magnet energy storage**
- perform. of power conversion syst. for SMES. *Skiles, J.J.*, +, *T-PWRS Nov 96 1718-1723*
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- Surveillance**; cf. Monitoring
- Switches/switchgear**
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- Synchronous generators**
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- Synchronous machines**
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- Target recognition**; cf. Inverse problems
- Temperature control**; cf. Air conditioning
- Testing**; cf. Power system testing
- Thermal factors**
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- Thermal power generation**
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time series; cf. Autoregressive processes

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transformers; cf. Power transformers

transforms; cf. Discrete transforms; Fourier transforms; Wavelet transforms

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User interfaces; cf. Graphical user interfaces

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